Highlights

This issue of the *Natural Gas Monthly* contains estimates of natural gas data through April 2001 for many data series at the national level. National-level natural gas prices are available through December 2000 (electric utilities), January 2001 (residential, commercial, and industrial), or March (wellhead). State-level data are available through January 2001, although underground storage data are available through February 2001. Highlights of this report are:

- Dry natural gas production ended the year 2000 at 19,256 billion cubic feet, 3 percent above the 1999 level (Table 1). The growth in production has continued in 2001, although at a somewhat slower rate. An estimated 6,509 billion cubic feet was produced from January through April, 2 percent above production during the same period of 2000.

- Net imports continue at a strong pace during 2001. From January through April they totaled 1,418 billion cubic feet, 23 percent more than during the same period of 2000 (Table 2). The opening of the Alliance Pipeline in late 2000 provided some additional capacity to meet sustained demand for gas in the United States. Alliance brings gas from western Canada to the Chicago area.

- The natural gas industry ended the 2000-2001 heating season on March 31 with an estimated 734 billion cubic feet of working gas in underground storage, a record low level (Figure HI2). The refill season began in April, and an estimated 245 billion cubic feet (net) of gas was added to underground storage during the month (Table 10). This is the highest refill rate for April since 1998 when 200 billion cubic of gas was added. Concern about low working-gas stock levels during this past heating season may have contributed to the sharp increase in refill activity.

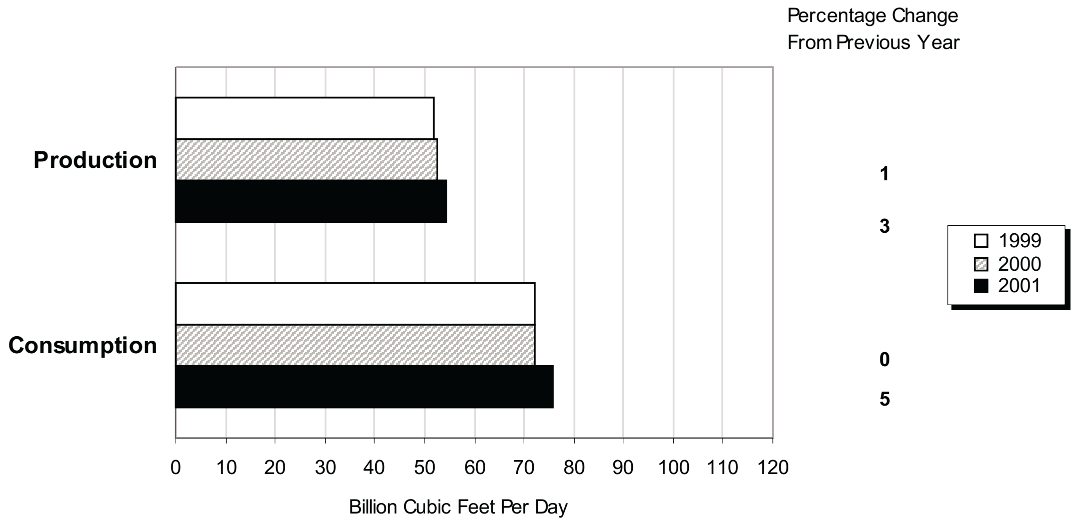
- The January-through-April estimate of end-use consumption of natural gas is 4 percent above that of last year, driven by an increased need for space heating. Although heating degree days, nationally, were lower than normal in January and February 2001, they were higher (indicating colder weather) than in January and February 2000–by 4 and 16 percent respectively (Table 26). Heating degree days in March 2001 were 7 percent higher than normal and 32 percent higher than in March 2000. Cumulative consumption of natural gas in the residential sector for January through April 2001 is 2,944 billion cubic feet, 15 percent higher than in the same period last year (Table 3). Commercial consumption during the same period is 1,684 billion cubic feet, 9 percent higher than last year.

- Estimates of the average prices that end users paid for natural gas are now available for January 2001 for most sectors. Prices are much higher than they were a year ago, reflecting the strong upsurge in wellhead prices that occurred during the summer and later months of 2000 (Table 4).

Consumption by Electric Utilities

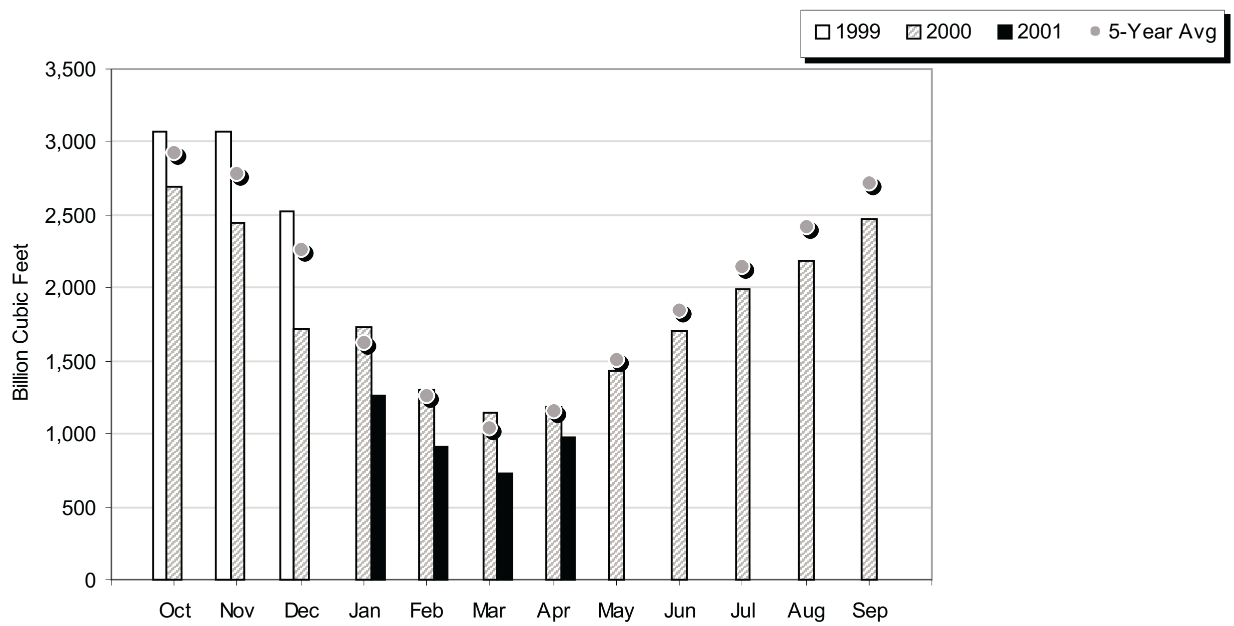
Data for natural gas consumption by electric utilities are not available for January 2001 in this issue of the *Natural Gas Monthly*. However, consumption data for the other end use sectors are available. The Energy Information Administration (EIA) expects to release the January 2001 electricity consumption data before the May issue of the *Natural Gas Monthly* becomes available. They will be included in Table 41 of the next issue of the *Electric Power Monthly* report. You may find this report on the EIA web site, Click on the by-fuel section of the home page and select electricity. The URL to get directly to the *Electric Power Monthly* is http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html.

Figure HI1. Average Daily Rate of Natural Gas Production and Consumption, January-April, 1999-2001



Source: Table 2.

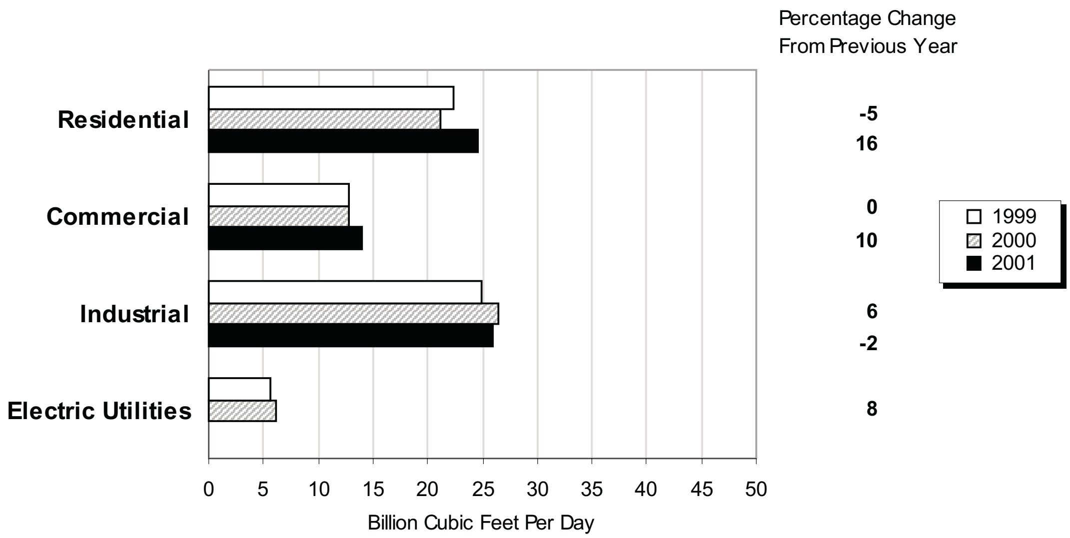
Figure HI2. Working Gas in Underground Storage in the United States, 1999-2001



Note: The 5-year average is calculated using the latest available monthly data. For example, the December average is calculated from December storage levels for 1996 to 2000 while the January average is calculated from January levels for 1997 to 2001. Data are reported as of the end of the month, thus October data represent the beginning of the heating season.

Source: Form EIA-191, "Underground Natural Gas Storage Report," Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition," and Short-Term Integrated Forecasting System.

Figure HI3. Average Daily Rate of Natural Gas Deliveries to Consumers, January-April, 1999-2001



Note: Electric utilities reflect deliveries for January. January 2001 data not available in time for publication. See box on cover page for more information.
Source: Table 3.

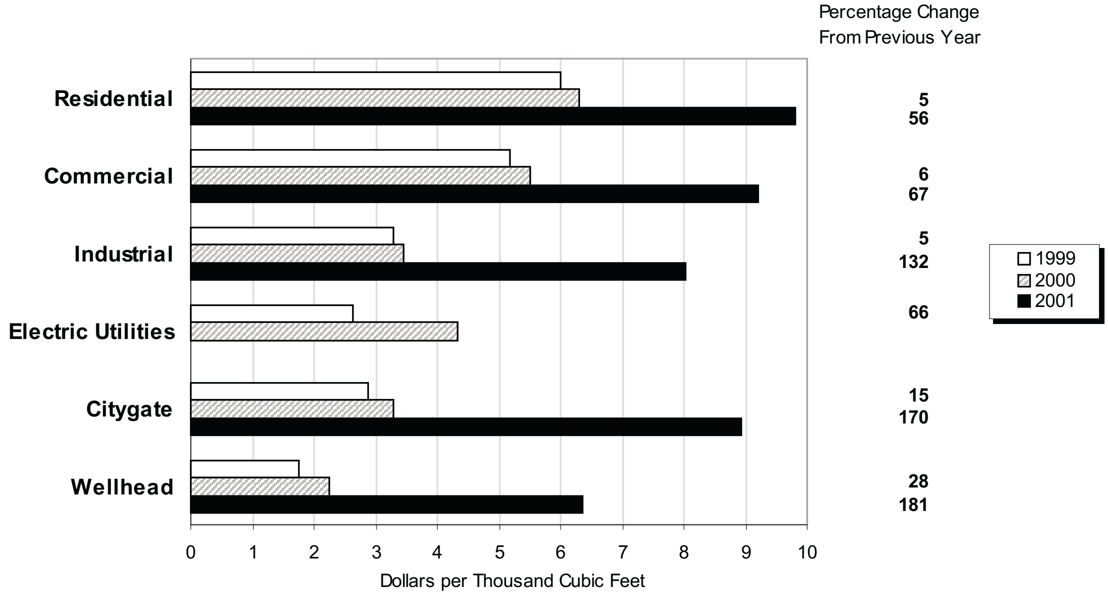
Residential and commercial[1] users paid an estimated $9.82 and $9.21 per thousand cubic feet for natural gas in January 2001, 56 and 67 percent higher, respectively, than in January 2000 (Figure HI4). Industrial users paid an estimated $8.02 per thousand cubic feet in January 2001, more than twice the $3.46 paid by this sector in January 2000. Estimated average prices paid for natural gas by electric utilities are now available for all of 2000. The average price in 2000 of $4.34 per thousand cubic feet is 66 percent higher than the 1999 average of $2.62.

- The most recent estimate of the national average wellhead price is $5.15 per thousand cubic feet for March 2001. This is down from the estimate of $5.84 for February 2001 and is much lower than the $8.06 for January 2001. However, the average wellhead price for the first quarter of 2001 is $6.35 per thousand cubic feet, much higher than the first quarter averages for 2000 and 1999 of $2.26 and $1.76 per thousand cubic feet, respectively.

- During April 2001, daily natural gas futures settlement prices on the contract for May 2001 delivery at the Henry Hub remained above $5.00 per million Btu until the last few days of the month. Settlement prices for May delivery on the New York Mercantile Exchange ranged from $5.559 to $4.891 per million Btu during this period (Figure HI5). The high price occurred on April 10, 2001, while the low price was the closing price for the contract on April 26, 2001. During April, the settlement price on the May contract fell below $5.00 on only the last 2 days of trading. The contract for delivery in June 2001 began its first day as the near-month contract on April 27 and settled at $4.867. Although futures prices are more moderate than earlier in the year, this price for the June contract is $1.812 or 59 percent higher than a year ago.

1 End-use prices in the residential, commercial, and industrial sectors are for onsystem gas sales only. While monthly onsystem sales are nearly 100 percent of residential deliveries, in 2000 they averaged 64 percent of commercial deliveries and only 15 percent of industrial deliveries (Table 4).

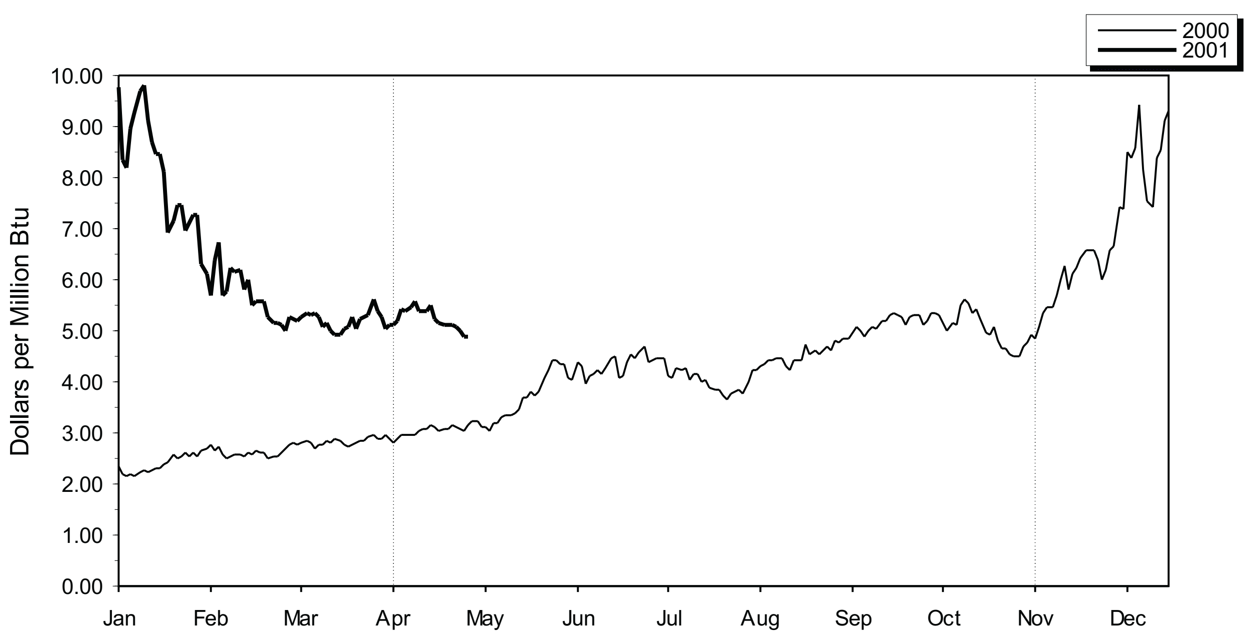
Figure HI4. Average Delivered and Wellhead Natural Gas Prices, Year-to-Date, 1999-2001



Note: Commercial and industrial average prices reflect onsystem sales only. The reporting of wellhead prices is 2 months ahead of the reporting of city gate, residential, commercial, and industrial prices. The reporting of electric utility prices is 1 month behind the reporting of city gate, residential, commercial, and industrial prices.

Source: Table 4.

Figure HI5. Daily Futures Settlement Prices at the Henry Hub



Note: The futures price is for the near-month contract, that is, for the next contract to terminate trading. Contracts are traded on the New York Mercantile Exchange. April 1 is the beginning of the natural gas storage refill season. November 1 is the beginning of the heating season.

Source: Commodity Futures Trading Commission, Division of Economic Analysis.

Recap of the 2000-2001 Heating Season

Early winter weather and the first cold winter in 5 years contributed to high prices

The past winter was highlighted by high prices for natural gas at the wellhead and at most upstream markets. For the 5-month heating season (November 2000 through March 2001), the average estimated wellhead price was $6.00 per thousand cubic feet (Mcf) compared with $2.33 for the same period last year (Table 4). Prices at other markets were also at very high levels for most of the winter months with spot prices at the Henry Hub in Louisiana trading for over $10.00 per million Btu (MMBtu) for several days in late December and early January. Low temperatures dominated for much of the season, making it the first colder-than-normal winter since 1995-1996. According to Energy Information Administration (EIA) estimates derived from National Oceanic and Atmospheric Administration (NOAA) data, the Lower 48 States had 5.9 percent more heating degree days (HDD)[1] than normal this past heating season compared with 13.9 percent less than normal the previous winter.

The low temperatures arrived early (Figure HI6), as November and December had 15.9 and 19.6 percent more HDDs than normal and several regions of the country recorded increases of more than 25 percent above normal during these 2 months (Table 26). Overall during the heating season, consumption in the residential sector increased by an estimated 20 percent from the year-earlier level to meet the increased demand for space heating. As a possible result of a slowing in the expansion of the U.S. economy, consumption in the industrial sector moved down slightly from the previous winter, declining by an estimated 0.8 percent (Table 3). Domestic production was 3.3 percent higher during this period compared to the previous year and net imports increased by an estimated 15.8 percent, reaching a record monthly high of 375 Bcf for an average of 13.4 Bcf per day in February 2001 (Table 2). The previous high was in December 2000 with 346 Bcf or an average of 11.2 Bcf per day.

Prices rose sharply

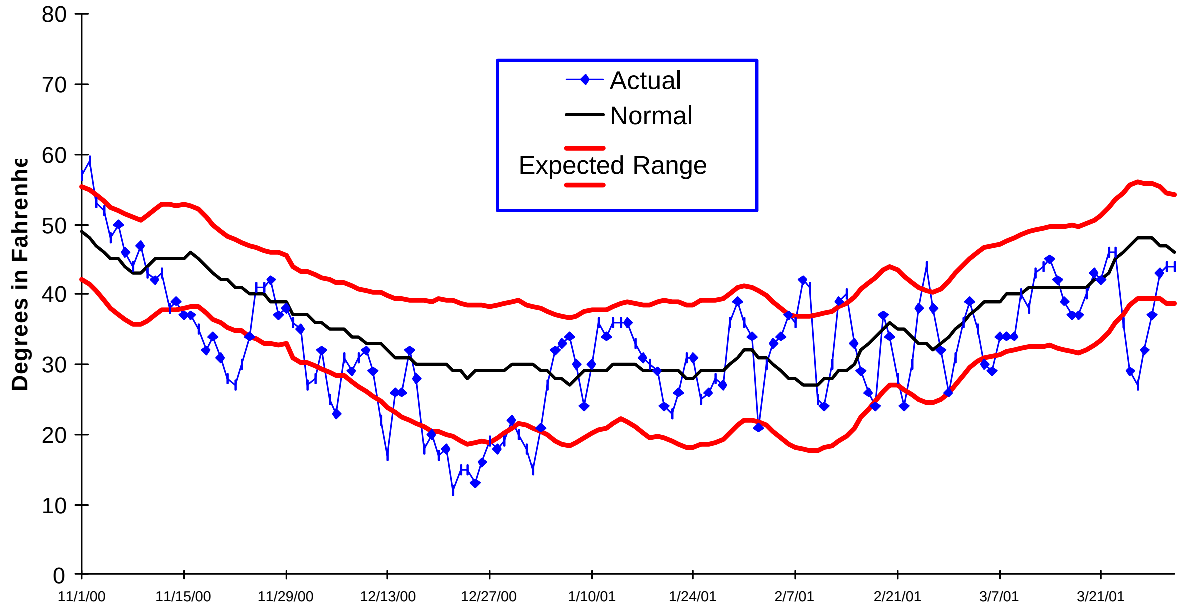
Wellhead prices, which had begun to trend up in spring 2000, continued upward throughout most of the summer primarily because of extremely hot weather in the Southwest and lingering concerns about domestic gas supplies. Working gas levels in September were more than 10 percent below the previous 5-year average at the time. This contributed to September and October average natural gas wellhead prices of $4.26 and $4.61 per Mcf (Table 4). Wellhead prices increased slightly in November, then rose sharply to $6.35 per Mcf in December as the low temperatures that began in November persisted and moved into most of the eastern two thirds of the country.

On the New York Mercantile Exchange (NYMEX), the natural gas futures contract for December delivery (at the Henry Hub) had a final closing price of $6.016 per MMBtu in late November. This was followed by a sharp increase the next month as the January NYMEX contract closed at $9.978 on December 27. Moderating temperatures in the last half of January contributed to a decline for the February contact to $6.293 per MMBtu. The downward trend continued as the warmer-than-normal temperatures prevailed in February and the March contract closed at $4.998 on February 26. Even with this sharp decline, the NYMEX contract for March 2001 deliveries was well above last year's final price for March of $2.603. Spot prices followed a similar pattern as the futures prices. Spot prices at the Henry Hub reached $10.53 per MMBtu on December 29, and averaged more than $8.98 in December and more than $8.30 in January. Prices moved down to average $5.73 per MMBtu in February and $5.12 in March.

The price of other winter space-heating fuels also rose at this time but not as sharply as natural gas. For example, No. 2 heating oil, which is widely used in many parts of the Northeast, had a spot price of about $6.50 per MMBtu between December and February before declining to about $5.50 in March. In December and January, the price of natural gas at the Henry Hub spot market compared on a MMBtu basis to West Texas Intermediate (WTI) crude oil was more than twice as high most days before declining sharply in March (Figure HI7). (The spot market and NYMEX futures prices along with the WTI are tracked daily and reported weekly each Monday in the *Natural Gas Weekly Update* on the EIA Website: www.eia.doe.gov.)

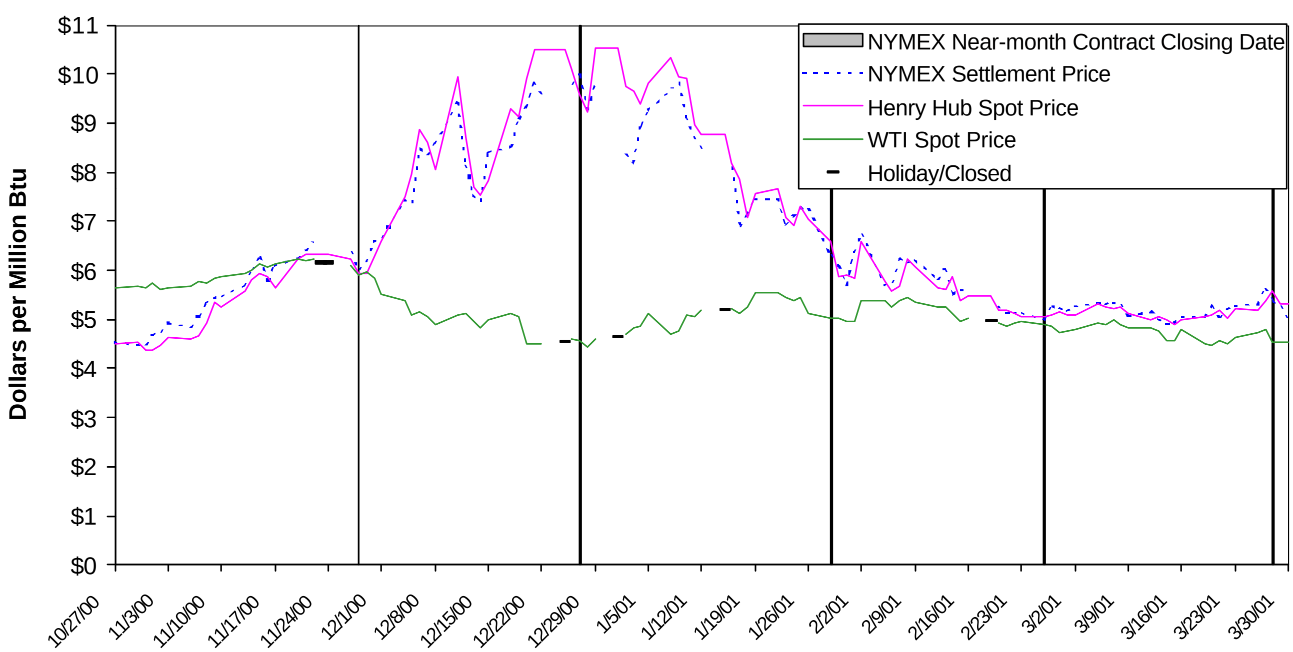
[1]The number of degrees per day the daily average temperature is below 65 degrees Fahrenheit.

Figure HI6. Average Temperature for Four Major Gas-Consuming Areas (Chicago, Kansas City, New York, and Pittsburgh)



The bounds are computed by adding and subtracting from the average temperatures for the last 10 years an amount equal to twice an estimate of the standard deviation for temperatures on a day.

Figure HI7. NYMEX Futures, Henry Hub Spot, and WTI Spot Prices



Note: The Henry Hub spot price is from the *Gas Daily* and is the midpoint of their high and low price for a day. The West Texas Intermediate (WTI) crude oil price, in dollars per barrel, is the "sell price" from the *Gas Daily,* and is converted to dollars per million Btu (MMBtu) using a conversion factor of 5.80 MMBtu per barrel. The dates marked by vertical lines are the NYMEX near-month contract settlement dates.

Regional spot market prices rose sharply

Prices at many major market locations were at rarely seen levels for more than 3 weeks during the periods of extremely low temperatures in December and January. At Katy in East Texas and at Waha in West Texas, prices were above $10.00 per MMBtu on some days and prices in excess of $9.00 were the norm for over 3 weeks. Prices at citygates that serve Midwest and Northeast markets also had a number of sharp price increases during December and January (Figure HI8). Prices at Transco Zone-6 near New York City were close to $40.00 per MMBtu on December 29, and were in the $10.00 to $20.00 range for several other days. In the Midwest, where the low temperatures resulted in HDDs that were 26 percent higher than normal, Chicago citygate prices traded between $9.00 and $10.00 most days between December 19 and January 11. However, the Chicago markets did not have the extreme price spikes seen in New York and other Northeastern markets as they only reached $15.70 on December 21. Midwest market benefits from a much larger pipeline capacity compared to markets in the Northeast. Midwest transportation resources were enhanced even more at the end of last year with the opening of the Alliance Pipeline from Canada, which increased crossborder capacity by 1.3 billion cubic feet per day with much of it earmarked for the metropolitan Chicago market.

California prices at record high levels

Over the past 6 months, the state of California, which is the nation's second largest consumer of natural gas (2.15 trillion cubic feet in 1999), has had some of the highest natural gas prices ever reported. Several factors have contributed to this period of persistently high prices. For instance, the availability of hydroelectric power has been sharply reduced following 2 years of drought in the Northwest, leaving California and other parts of the West to revert to other power sources that primarily consume natural gas. In addition, very warm summer weather followed by cool temperatures in the fall increased the demand for natural gas for air-conditioning in the summer months and for space heating in the fall. Residential consumption in California increased over 50 percent in November 2000 compared to the same month in 1999. Also, the steady expansion in the state's economy increased the demand for power.

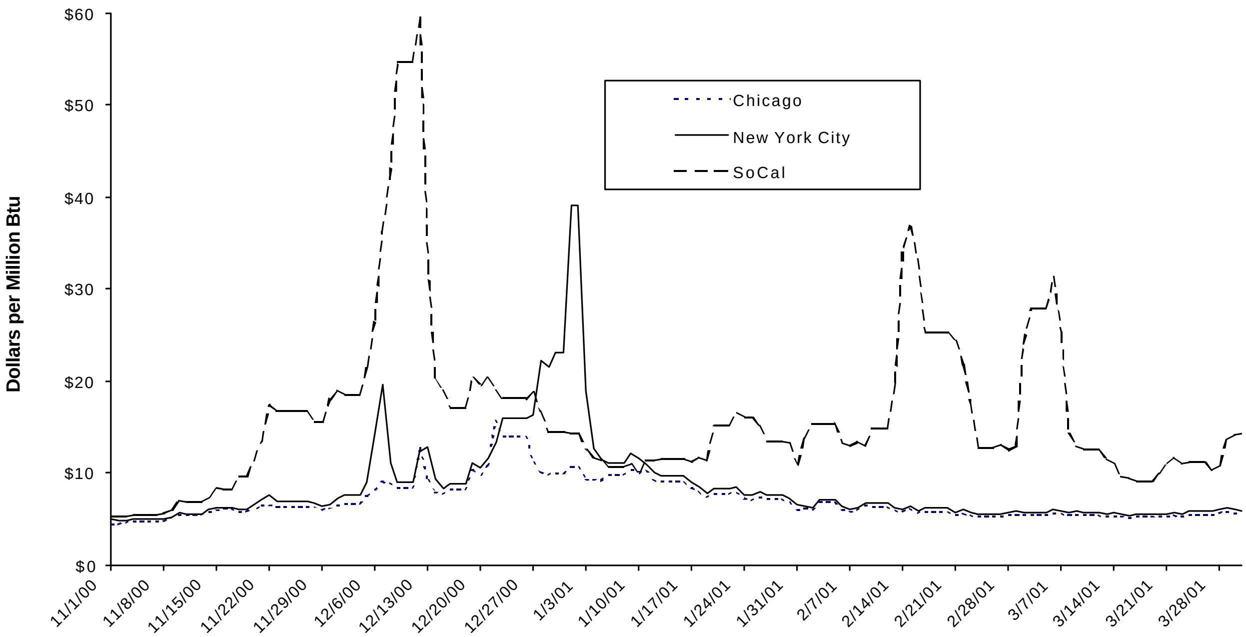
The situation was further compounded in August by an explosion on a major pipeline that delivers gas to southern California from the southwestern U.S. producing areas. All of these factors have put tremendous demands on the state's energy systems resulting in unprecedented prices, especially in the southern part of the state where prices exceeded $60.00 per MMBtu on December 11 (Figure HI8). Citygate prices on the SoCal system near the California-Arizona border went above $10.00 per MMBtu in mid-November and have remained there most days since then; in December prices remained above $20.00 for more than a week.

Storage withdrawals highest in 5 years

The net change to stocks during the 2000-2001 heating season is estimated by EIA to have been 1,965 Bcf, the highest total since the winter of 1995-96 when 2,238 Bcf was withdrawn. Working gas storage at the end of October 2000 was only 2,699 Bcf (Figure HI9), the lowest level at the start of the heating season since 1976. The early cold weather in the Midwest and Northeast contributed to net withdrawals from storage of 983 Bcf in November and December, resulting in a record low end-of-December stock level of 1,720 Bcf. The more moderate temperatures in mid-January led to a slowing in the rate of stock withdrawals, resulting in net withdrawals of 467 Bcf in January compared to December's 690 Bcf drawdown. The reduced stock utilization continued in February and March as an estimated 338 and 178 Bcf of stocks, respectively, were withdrawn during the last 2 months of the heating season. Still, by the end of March, estimated working gas stocks were at a record low of 734 Bcf – 24 Bcf less than the previous low of 758 Bcf on March 31, 1996.

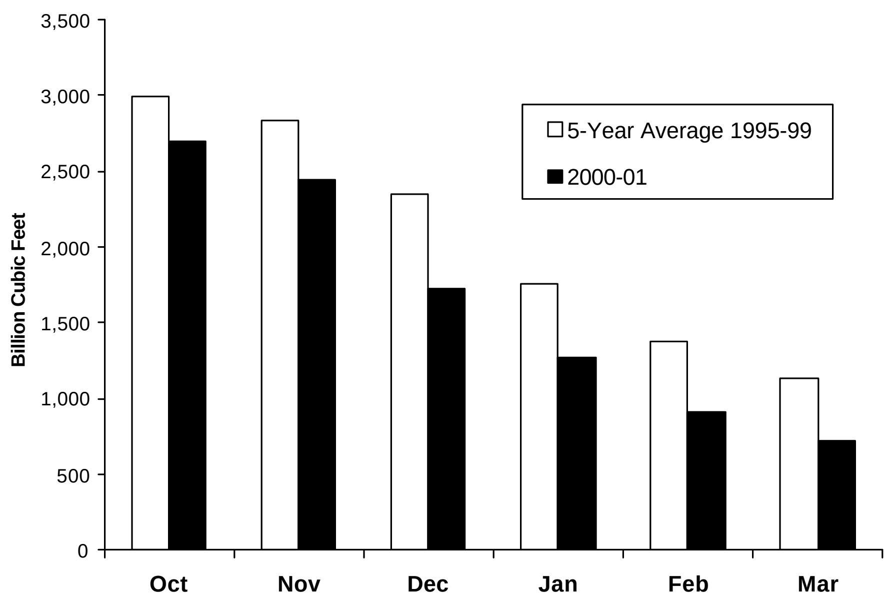
The industry will need a stock build of 2,188 Bcf during the 7-month refill season (April through October) in order to reach the 5-year (1996-2000) average of 2,922 Bcf by the start of the upcoming heating season on November 1, 2001. This level of net additions exceeds the most recent 5-year refill average by 368 Bcf. (Through the first 27 days of the refill season, an estimated 221 Bcf has been added to stocks, bringing the working gas level to an estimated 955 Bcf as of April 27, 2001.)

Figure HI8. Citygate Prices: Chicago, New York, Southern California
(November 1, 2000-March 31, 2001)



Source: Financial Times Energy, *Gas Daily,* daily midpoints of common ranges of prices for these locations.

Figure HI9. Working Gas in Storage at the End of the Month
2000-01 vs. Average 1995-99



Source: *Natural Gas Monthly,* 1995-present, Table 9.